



Telefax

April 15, 2002

From Ron Purcell
To Bob Lyons
Cc Charles Dicks

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Subject: **Visit Report**

Customer : Proma Technologies

Location : Franklin, Mass.

Contact : Dave Peavey

Reason for Visit : Accident Investigation

Machine Number : 92036

Date in : March 25, 2002

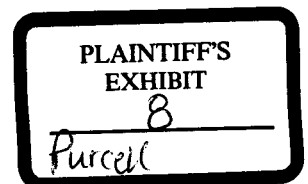
Date out : March 28, 2002

Customer PO No :

Expense report No : 33002

Regards,

Ron Purcell





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A visit to Proma was requested due to the fact that there had been an accident on the machine resulting in injuries.

It appears that the operators had made a change-over from one set-up to a new one. During the process of getting all the cuts lined up and started, the internal arms lifted off the winding drum for some reason. The empty core accelerated out of control and was ejected from the machine, striking one of the operators.

After my arrival, initial tests revealed that arm 2 LEFT would in fact run away, but arm 2 RIGHT was in control. Checks of the drives revealed that a "switch" on the armature feedback daughter board was not in either of the two positions. That is to say that the switch was in an open position when it should have been in a closed position. Putting this switch in the correct position corrected the run away problem and arm 2 LEFT was then in control. Further checks revealed that the switch on arm 1 LEFT was in the wrong position, 4 RIGHT was in neither position and 5 LEFT was in neither position. All drives were checked for correct switch position and soldered in place. After this was done all drives were run from an external switch and potentiometer arrangement in a manual override configuration. It was visually verified that all drives do, in fact speed limit and will not run away.

The arrangement and configuration of the rewind drive system on this machine is torque control with speed limit. This means that during normal operation the drives will be in torque control. They receive a torque setpoint from the PLC that corresponds to the tension required as defined in the PDF. They also receive a speed setpoint that is based on machine speed and rewind diameter plus an overspeed value. As stated above, during normal operation, the drives will be in torque control, but in the case of a web break or other condition where the drive cannot achieve the prescribed current setpoint, the speed loop will take control and not allow the motor to run away trying to get to the current setpoint. This speed limit is within safety limits and was verified to be a reasonable speed.

The PLC program was verified to be outputting correct values for torque and speed. It was also verified that lengths and diameters are being reset correctly.

The Armature Voltage Feedback daughter board is a plug-in board that sits on top of the drive card. This card is used to give the drive its speed feedback signal in the absence of a tachometer on the motor. There have been two versions of the actual Infranor drive in use. One, the M55 version is no longer available from Infranor, but there are a large number of these in the field. The other version, the M59 is the current drive and all that is supplied by Infranor. The Armature Voltage Feedback board is common to both boards, but the switch positions are

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different between the M55 and M59 drives. The Atlas drawings are specific as to the switch position on the M55 and M59 drives.

Standard operating procedures would dictate that when replacing any electronic component, the authorized technician should check all switches, jumpers and links for correct position. If there is a question concerning one of the settings, the drawings or manuals should be consulted before putting the component into operation.

As a further safety check the same tests were performed on the new machine, S/N V00095. All motors and drives were run and verified that they do speed limit and not run out of control. Machine #V00095 uses the Atlas PWM 3021 drives for rewind drives instead of the Infranor drives.

CONCLUSIONS:

The results of the tests performed at Proma indicate that both of the machines are operating in the manner and within the limits they were designed for. No reason was found for the arms lifting off the winding drum. However, it is not unusual on a center surface machine with weight relieving to have the arms lift on occasion. The reasons for this could be numerous, but if the drives remain in control, as they are designed to do, it is not a problem and poses no hazard to the machine or personnel.

Submitted April 12, 2002

Ron Purcell